Precigen Business Update

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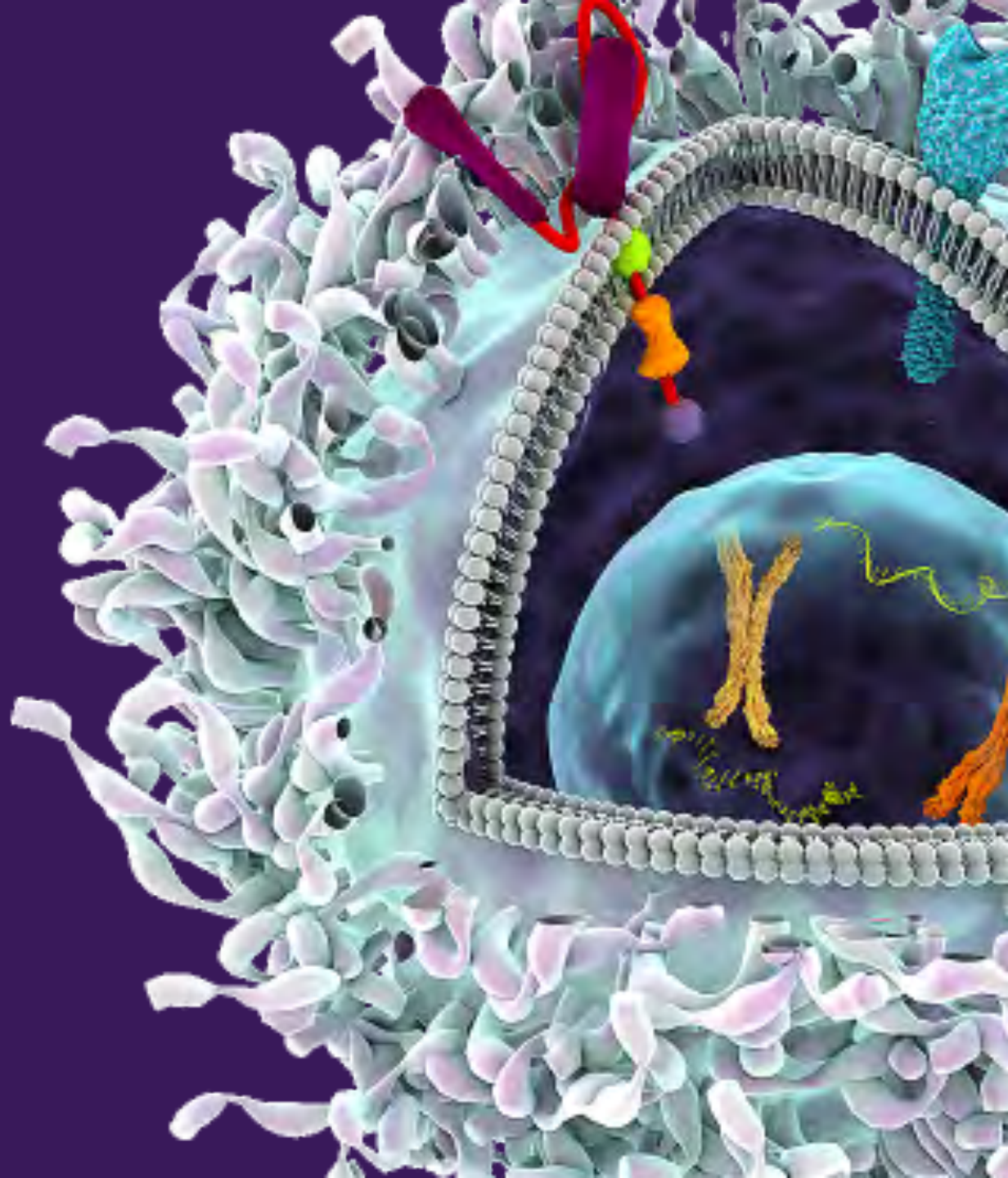
26 December 2018



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Forward-looking statements

Precigen, Inc. is a subsidiary of Intrexon Corporation (NASDAQ: XON). Some of the statements made in this presentation are forward-looking statements. These forward-looking statements are based upon our current expectations and projections about future events and generally relate to our plans, objectives and expectations for the development of our business.

Although management believes that the plans and objectives reflected in or suggested by these forward-looking statements are reasonable, all forward-looking statements involve risks and uncertainties and actual future results may be materially different from the plans, objectives and expectations expressed in this presentation. All information in this presentation is as of the date marked on the cover page, and neither Precigen nor Intrexon undertakes any duty to update this information unless required by law.

Today's business updates

- Introduction to Precigen's near-term R&D strategies
- Precigen's transformation to an agile R&D engine
- Agreement overviews for Ziopharm and Merck KGaA
- Introduction to Precigen's transformative platform technologies, including UltraCAR-T™
- An overview of the opportunity in immunotherapies
- Overview of PRGN-3006 UltraCAR-T and AML/MDS

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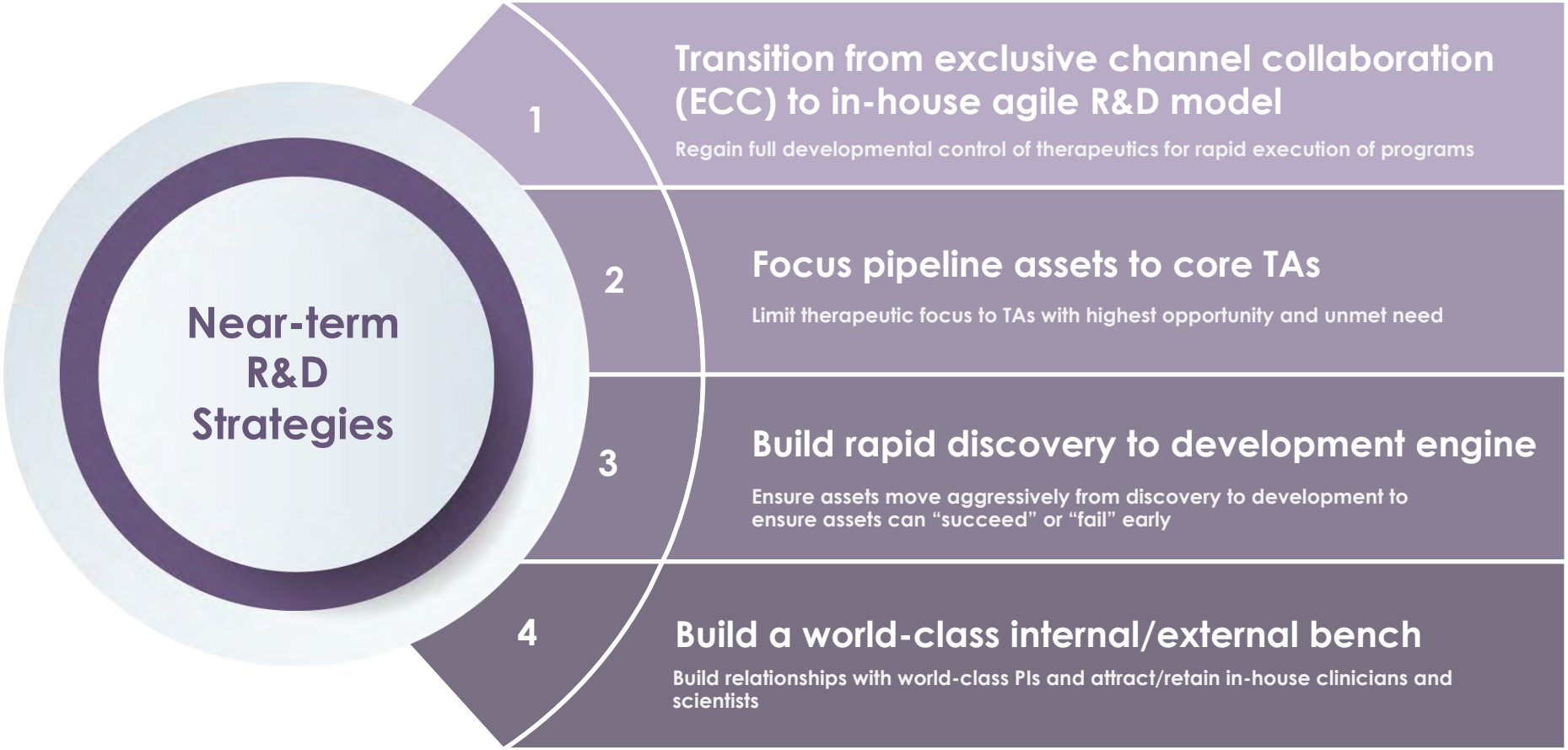
Precigen's near-term R&D strategy sets up company for long-term success



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Ziopharm license agreement returns rights to pursue CAR targets

Agreement Overview

- Executed October 9, 2018
- Replaced existing agreements with Ziopharm

Outcome: Precigen has exclusive rights to pursue all CAR targets and *Sleeping Beauty* system in all tumor types (hematological and solid) subject to:

- Ziopharm rights are limited to CD19 CAR-T and the right to negotiate for a second undisclosed CAR-T target. *Sleeping Beauty* licensing to Ziopharm is limited to these two CAR-T cells and use in T-cell Receptor (TCR) therapy
- Precigen retains rights for the *Sleeping Beauty* system and membrane bound interleukin-15 (mbIL15)
- Precigen will receive milestone payments and commercial royalties for Ziopharm's use of Precigen's technology

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Please refer to the 8-K filing for additional details regarding the agreement with Ziopharm

Merck KGaA 2018 agreement assigns exclusive CAR-T development rights to Intrexon, providing Precigen with complete autonomy of its UltraCAR-T™ platform

Agreement Overview

- Expected to close this year
- Assigns and transfers all Merck KGaA CAR-T rights to Intrexon

Outcome: Assigns Merck KGaA's exclusive CAR-T development rights to Intrexon

- Establishes Precigen's **complete autonomy** for its UltraCAR-T platform
- Merck KGaA will receive $150 million in Intrexon stock and a $25 million convertible note
- Intrexon to receive $25 million cash investment
- Merck may receive a 10 percent royalty restricted to the two previous Merck KGaA targets, but will not receive a royalty on other CAR targets

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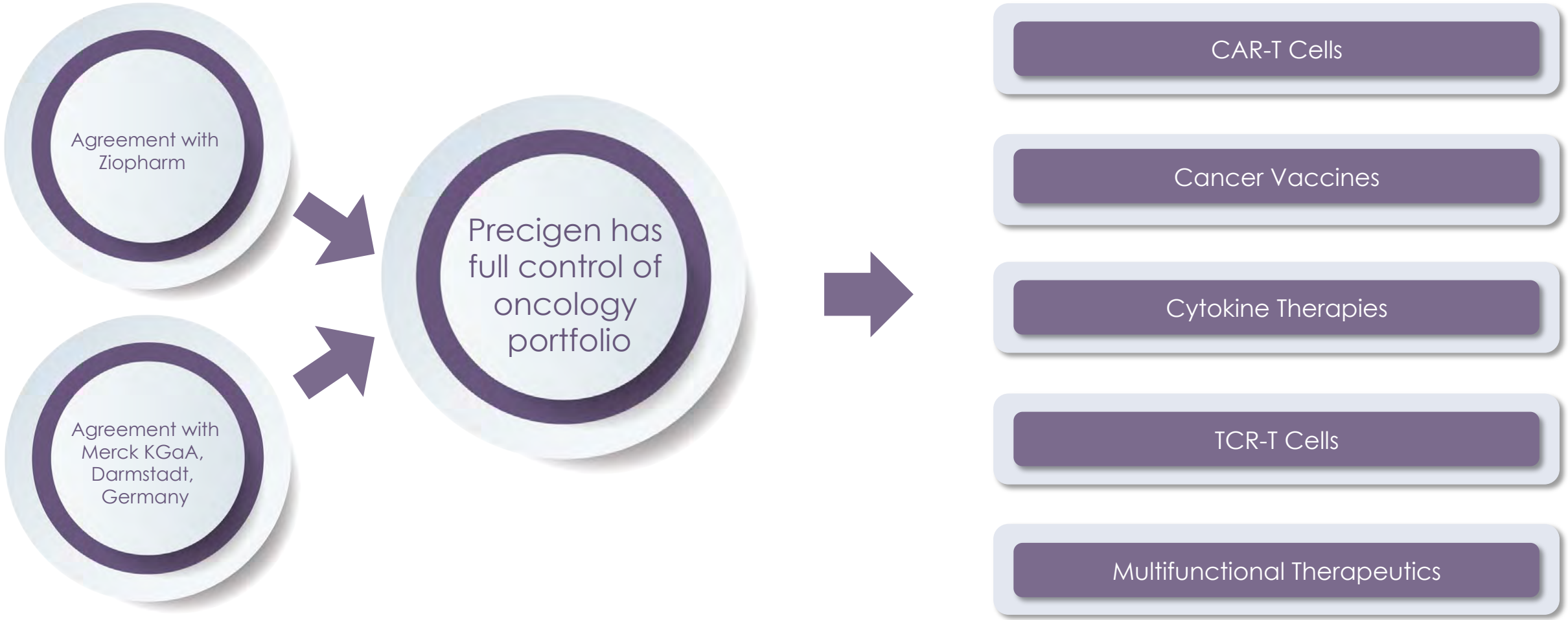
Please refer to the 8-K filing for additional details regarding the agreement with Merck KGaA, Darmstadt, Germany

Precigen has transitioned from an exclusive channel collaboration (ECC) model to agile R&D engine for full control of therapeutics



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Current immunotherapy landscape has promise, but many drawbacks

Checkpoint Inhibitors

- Immunotherapy with checkpoint inhibitors has revolutionized cancer treatment in recent years
- Despite the success, only a minority of patients respond; in some indications there is no response
- Relapse rates are high among responders to checkpoint inhibitors
- Combination trials with checkpoint inhibitors have yielded only incremental advances at high cost

Viral-Based CAR-T

Autologous

- Unparalleled clinical efficacy using anti CD19-CAR-T cells for treatment of refractory B-cell malignancies
- Reliance on viral vectors: complexity of manufacturing; potential safety concerns
- More differentiated less desired T-cell phenotype
- Lengthy cell product manufacturing process
- Long delays for patients
- Major challenges in solid tumor treatments using current approaches

Allogeneic

- Available on-demand
- Limited persistence / rejection of allogeneic CAR-T by host
- Short treatment window may limit effectiveness for solid tumors

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Precigen's platform technologies enable success through our ability to control, construct and deliver targeted gene and cell therapies

CONTROL

of gene expression and regulation drives safety

- ✓ **RheoSwitch®:** First clinically validated transcriptional gene switch
- ✓ **Kill switches:** Targeted depletion of cell therapeutics for improved safety profile
- ✓ **Tissue specific promoters:** Conditional local gene expression

CONSTRUCTION

of powerful gene programs drives efficacy

- ✓ **UltraVector®:** Design of single and multi-genic programs
- ✓ **mbIL15:** Improved T-cell expansion and persistence for enhanced therapeutic efficacy

DELIVERY

of gene programs via viral and non-viral based approaches drives lower costs

- ✓ ***Sleeping Beauty* and AttSite™ Recombinases:** Non-viral platforms for multigenic expression and stable integration
- ✓ **AdenoVerse™:** Industry leading adenoviral vectors with low to no seroprevalence in the human population

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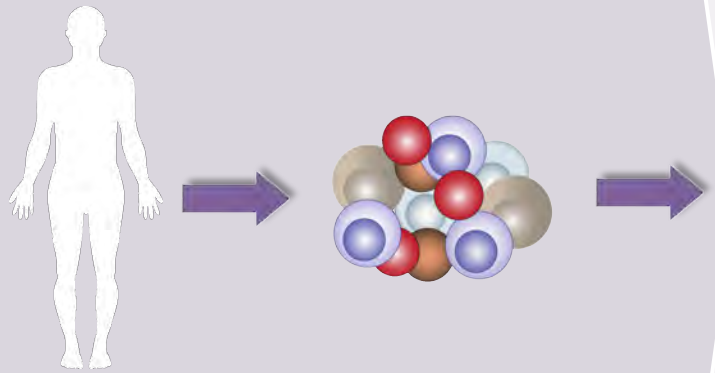
Disrupting the market: Precigen's transformative UltraCAR-T™ platform

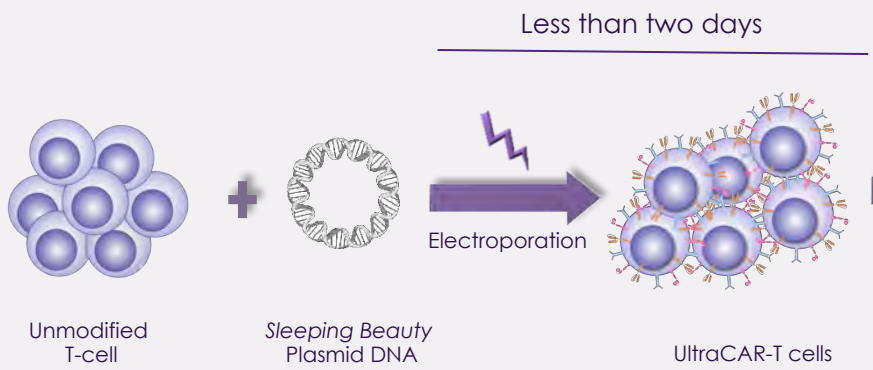
Precigen's UltraCAR-T Platform enables patient reinfusion within two days following non-viral gene transfer

1 Leukapheresis



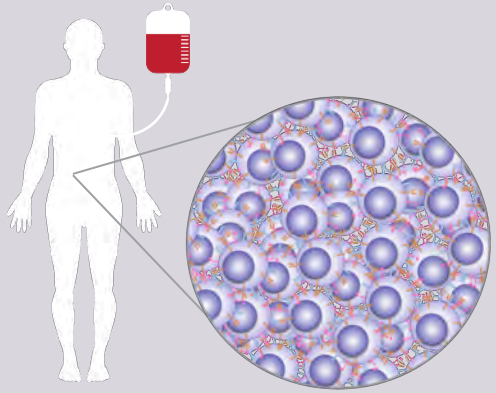
Leukapheresis and T cell isolation from patient

2 Electroporation



Electroporation of non-viral *Sleeping Beauty* for expression of CAR, mbIL15 and kill switch

3 UltraCAR-T Infusion



UltraCAR-T cells expand in patients

UltraCAR-T Advantages : Extended payload + Sustained persistence + T cell control + Rapid manufacturing

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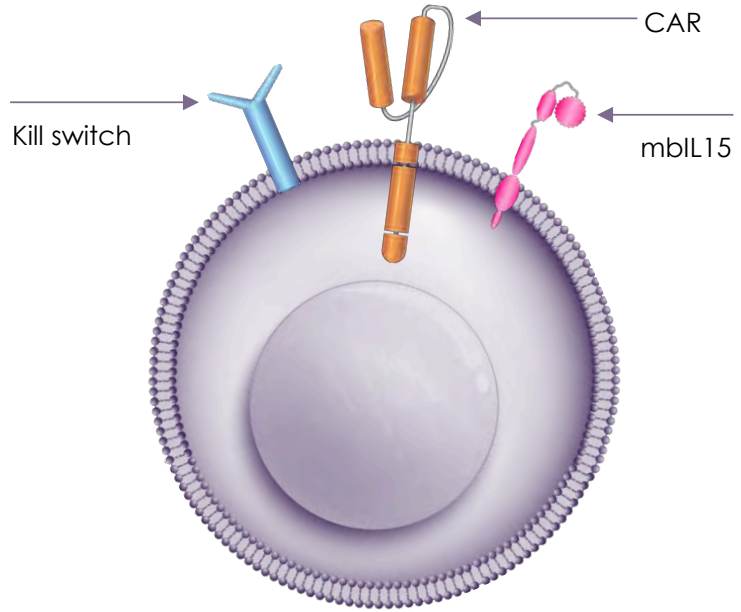
PRGN-3006 UltraCAR-T™, *a first-in-class therapy in AML,* received FDA clearance for IND to initiate Phase 1/1b study

Highlights and Differentiation

- Autologous T cell investigational therapy
- Non-viral *Sleeping Beauty* system to co-express CAR, mbIL15 and kill switch
- Rapid manufacturing
  - No *ex vivo* propagation step
  - Infusion within 2 days after gene transfer
- Next generation *Sleeping Beauty* design for optimized multigenic expression
- First approved IND utilizing Precigen's UltraCAR-T platform



Current Status

- IND cleared by the FDA to initiate phase 1/1b trial for patients with relapsed or refractory acute myeloid leukemia (AML) and higher risk myelodysplastic syndrome (MDS)

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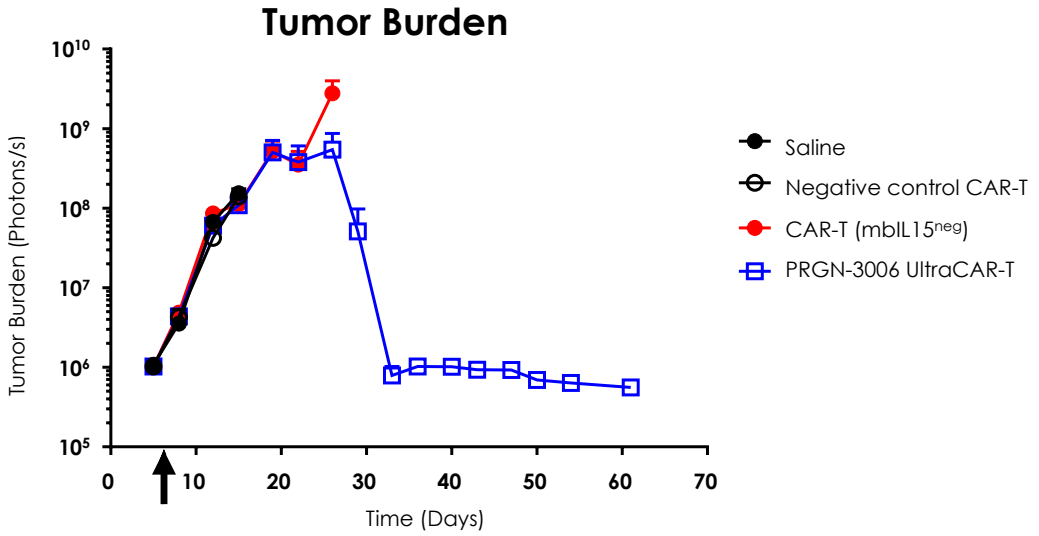
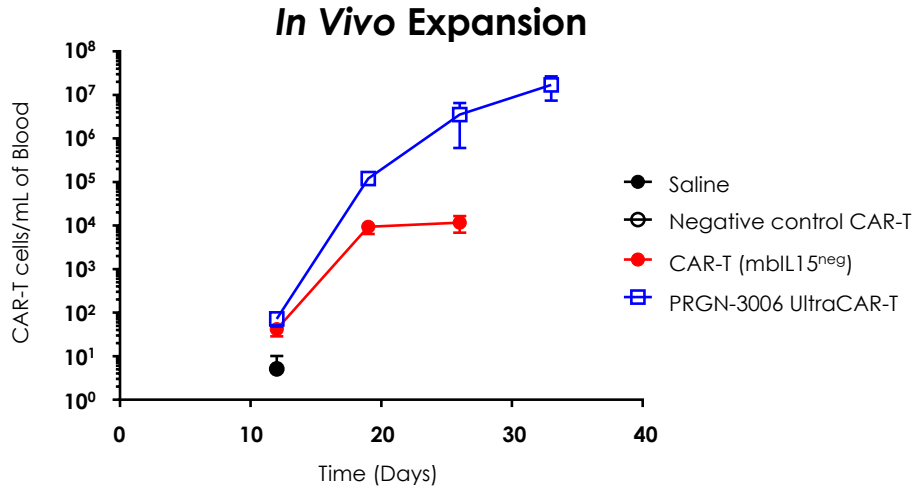
PRGN-3006 UltraCAR-T™ cells eliminated aggressive AML tumor in an *in vivo* mouse model

- PRGN-3006 UltraCAR-T cells administered in less than 2 days after gene transfer expand *in vivo* and persist in AML tumor bearing mice
- PRGN-3006 UltraCAR-T cells effectively eliminated AML tumor in mice
- Significant improvement in anti-tumor activity and survival by PRGN-3006 compared to mbIL15^{neg} CAR-T cells
- mbIL15 expression by PRGN-3006 necessary for elimination of aggressive AML tumor





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PRGN-3006 UltraCAR-T™ targets AML and MDS; patient populations with significant unmet need

Acute Myeloid Leukemia (AML)

Patient Characteristics and Incidence

- ~20,000 new cases in US in 2018, mostly in adults[1]
- Among most common types of leukemia in adults[1]

Survival

- Poor prognosis with an average 5-year survival rate of ~25 percent overall[2]
- Less than 5 percent 5-year survival rate for patients older than 65[2]
- Elderly patients median survival ranges from:
  - 3.5 months for patients 65 to 74 years[2]
  - 1.4 months for patients ≥ 85 years[2]

Myelodysplastic Syndrome (MDS)

Patient Characteristics and Incidence

- Diseases of bone marrow generally found in adults in their 70s[3]
- Incidence in the US is not known for sure; estimates range from 10,000 each year and higher[3]

Survival

- IPSS-R median survival varies:
  - < one year for the "very high" IPSS-R risk group[3]
  - > eight years for the "very low" IPSS-R group[3]

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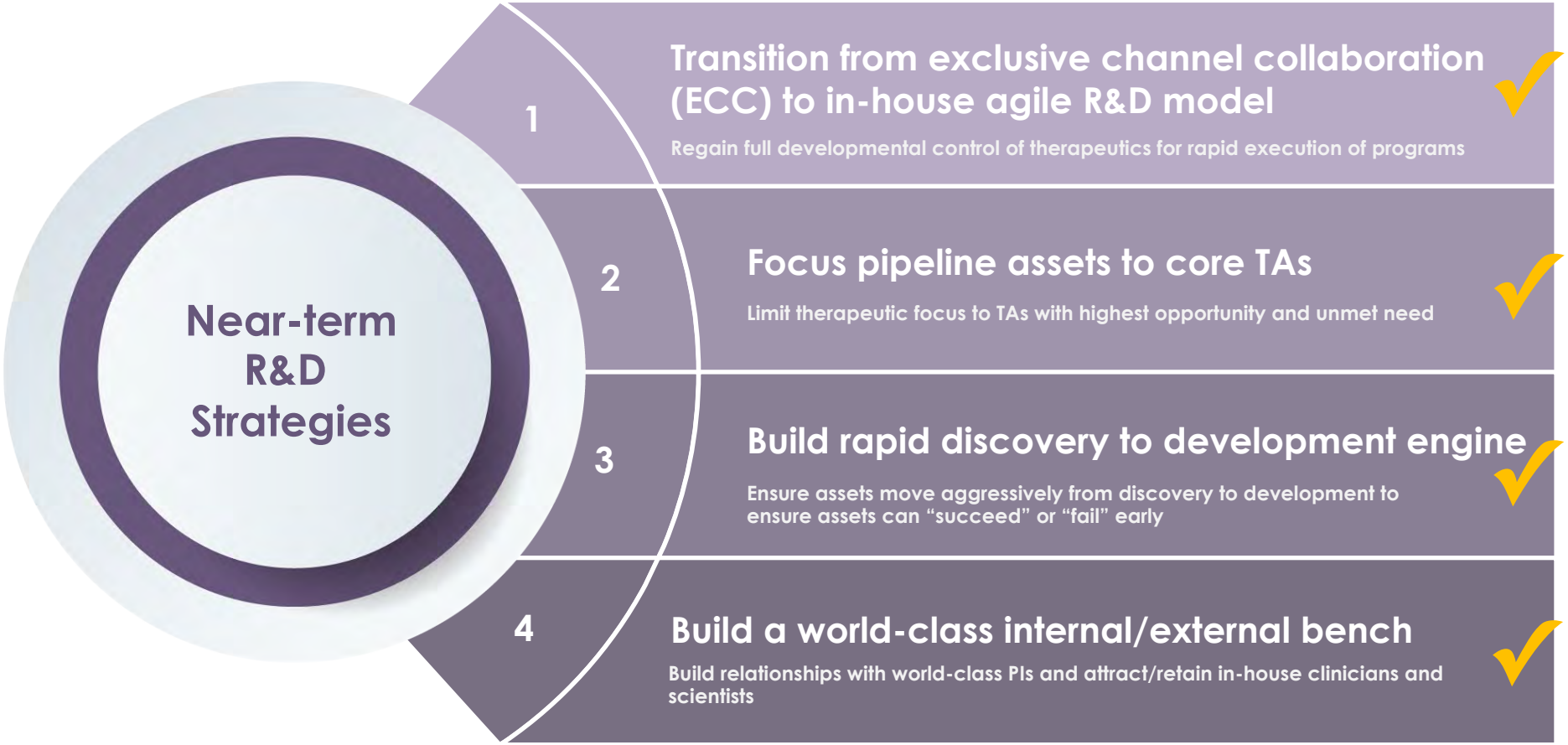
[1]American Cancer Society. Key Statistics for Acute Myeloid Leukemia (AML). Accessed December 2018 via ACS website.
[2]Thein, M., et al., Outcome of older patients with acute myeloid leukemia: an analysis of SEER data over 3 decades. Cancer, 2013. 119(15): p.2720-7.
[3]American Cancer Society. Key Statistics for Myelodysplastic Syndromes. Accessed December 2018 via ACS website.

Precigen is well on track to achieve near-term strategies



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ADVANCING MEDICINE WITH PRECISION™